

Amdt. dated October 24, 2005
Reply to Final Office Action of June 23, 2005

Serial No. 09/591,024
Docket No. TUC92000014US1
Firm No. 0018.0075

REMARKS/ARGUMENTS

The Examiner rejected claims 1-42 as obvious (35 U.S.C. §103) over Bare (2003/0016624) and Hatakeyama (U.S. Patent No. 6,542,468). Applicants traverse for the following reasons.

Amended claims 1, 15, and 29 concern selecting one of multiple data paths to a device, and require: selecting one of multiple paths indicated as enabled to transmit data, wherein a path is indicated as enabled or disabled; gathering transfer time data for multiple transfer sizes for each enabled path capable of being selected, wherein the transfer size is a size of the data being transferred in one transfer operation; and indicating paths as disabled for a given transfer size having transfer time data for the given transfer size satisfying a threshold transfer size, wherein paths indicated as disabled for given transfer sizes are not capable of being selected to use to transmit data having the given transfer size, wherein one path is capable of being concurrently indicated as disabled for a first transfer size and enabled for a second transfer size.

During the phone interview, the attorney for applicants and the Examiner discussed certain amendments to the independent claims 1, 15, and 29. Applicants made the discussed amendments to independent claims 1, 15, and 29. The Examiner said he would reconsider the rejection in view of the amendments and arguments made.

In the Final Office Action, the Examiner cited col. 4, lines 53-60 with respect to the pre-amended form of the gathering transfer time data limitation. (Final Office Action, pgs. 2-3) Applicants traverse.

The cited col. 4 discusses selecting an optimum path by recording transmission data and response times per unit data length returned from a transmission, and estimating the response time for each path by using the recorded information. Hatakeyama further mentions selecting a path by using an actual response time per unit data length. (Col. 4, lines 61-65)

Although Hatakeyama discusses selecting an optimum path by using an actual response time per unit data length, nowhere does the cited Hatakeyama anywhere teach or suggest the claim requirements of indicating paths as disabled that have transfer time data satisfying a threshold. Applicants submit that Hatakeyama's discussion of positively selecting a path to use,

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which involves not selecting other paths, does not teach the claim requirement of indicating a path as disabled as claimed. Not using a path is not the same as indicating that a path is disabled.

Moreover, Applicants submit that Hatekayama teaches away from the claim requirement of using transfer time data to determine a path to indicate as disabled because Hatekayama uses response time data for an opposite purpose, to select an optimum path to use, not to disable as claimed. Thus, nowhere does the cited Hatekayama teach or suggest that the cited optimum path, determined from the response data is indicated as disabled and not capable of being selected to use to transmit data as claimed.

Additionally, the amended claims now recite that the transfer time data is gathered for multiple transfer sizes, where the transfer size is the size of the data being transferred in the transfer operation, and indicating paths as disabled for a given transfer size. Nowhere does the cited Hatekaeyama anywhere teach or suggest indicating paths as disabled for a given transfer size, such that a path can be disabled for one transfer size but enabled for another.

The amendments to claims 1, 15, and 29 include requirements from canceled claims 4, 18, and 32. The amended claims now recite that transfer time data is gathered for multiple transfer sizes and that paths as disabled for a given transfer size having transfer time data for the given transfer size satisfying a threshold transfer size, wherein paths indicated as disabled for given transfer sizes are not capable of being selected to use to transmit data having the given transfer size, wherein one path is capable of being concurrently indicated as disabled for a first transfer size and enabled for a second transfer size.

The Examiner cited pg. 28, paragraphs 365-367 of Bare as teaching the requirements of canceled claims 4, 18, and 32, whose requirements were added to claims 1, 15, and 29. (Final Office Action, pg. 4)

The cited pg. 28, paragraph 365 of Bare mentions that when a link comes up for the first time, the port will become the broadcast link if no other ports received the cost packet. This moves paths to ports with the lowest current latency. Nowhere does paragraph 365 anywhere teach, suggest or mention gathering transfer time data for multiple transfer sizes, where a transfer

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size is the size of the data being transferred in one operation. Instead, the cited paragraph 365 mentions how a port becomes the broadcast link.

The cited paragraph 366 mentions that in one case, when the switch receives the cost criteria, it will delete the current broadcast path and return an ACK, and the ACK of the cost packet must wait until the delete has been confirmed. The cited paragraph 367 mentions that in the second case it is possible the cost packet went through an adjacent switch dependent on this switch broadcast path, and for this reason the switch cannot merely move the broadcast port.

Nowhere in the cited paragraphs 366 and 367 is there any teaching, suggestion or mention of gathering transfer time for multiple transfer sizes and that a path is disabled for a given transfer size. Instead, these paragraphs 365-367 discuss something entirely different and nowhere mention the specific requirements concerning gathering transfer time data and disabling a path for a given transfer size. Moreover, nowhere is there any teaching or suggestion in the cited Bare that a path can be concurrently indicated as disabled for a first transfer size and enabled for a second transfer size. Nowhere is there any teaching, suggestion or mention in the cited art of enabling and disabling paths for different transfer sizes.

Accordingly, claims 1, 15, and 29 are patentable over the cited art because the requirements of these claims are not taught or suggested in the cited art.

Dependent claims 2-14, 16-28, and 30-42 are patentable over the cited art because they depend from one of claims 1, 15, and 29, which are patentable over the cited art for the reasons discussed above. Moreover, certain of the below discussed dependent claims provide additional grounds of patentability over the cited art.

Claims 2, 16, and 30 depend from claims 1, 15, and 29 and further require indicating one disabled path as enabled after performing a threshold number of transfer operations. The Examiner cited col. 5, lines 37-42 of Hatakeyama as teaching the additional requirements of these claims. (Final Office Action, pg. 3). Applicants traverse for the following reasons.

The cited col. 5 mentions a method for selecting a path of data transmitted from a source to a destination node, and a network path of data returned from the transmission destination node in an environment where nodes are distributed and located via a network.

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Nowhere does this cited col. 5 anywhere teach or suggest the claim requirement of indicating one disabled path as enabled after performing a threshold number of transfer operations. Instead, the cited col. 5 mentions selecting an optimal path in general, not indicating the status of a disabled path to enabled after performing a threshold number of transfer operations as claimed.

Applicants again submit that the cited Hatakeyama's discussion of selecting the optimum path to use based on response data does not disclose the specific claim requirement of indicating a disabled path as enabled after performing a threshold number of operations.

Accordingly, claims 2, 16, and 30 provide additional grounds of patentability over the cited art.

Claims 3, 17, and 31 depend from claims 2, 16, and 30 and further require disabling the path for a first threshold number of transfer operations if the path has a transfer data time satisfying a first threshold and disabling the path for a second threshold number of transfer operations if the path has a transfer data time satisfying a second threshold. The Examiner cited col. 11, lines 32-47 of Hatakeyama as teaching the additional requirements of these claims. (Final Office Action, pg. 3) Applicants traverse for the following reasons.

The cited col. 11 mentions an "RIR" which is a most recent influence rate index indicating how much difference exists between the time at which an actual response time is measured and the time at which the degree of fitness is calculated. A positive constant is a value obtained by subtracting the actual response time measured from the time at which RIR is used. A "DRTi" is an absolute value of the difference between the estimated response time of the time point at which the ith actual response time is measured.

The cited col. 11 discusses the parameters for a degree of fitness, calculation which is a degree for determining how accurately the response time of a service request can be estimated. (Col. 11, lines 15-25). Nowhere does this cited section concerning the "degree of fitness" anywhere teach or suggest the claim requirement of disabling the path for a first threshold number of transfer operations if the path has a transfer data time satisfying a first threshold and

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disabling the path for a second threshold number of transfer operations if the path has a transfer data time satisfying a second threshold.

Nowhere in the cited col. 11 is there any teaching, suggestion or mention of disabling paths for first and second threshold number of transfer operations as claimed. Instead, the cited col. 11 concerns calculating a "degree of fitness", which is a degree for determining how accurately the response time of a service request can be estimated.

Accordingly, claims 3, 17, and 31 provide additional grounds of patentability over the cited art.

Amended claims 5, 19, and 33 concern selecting one of multiple data paths to a device, and require: selecting one of multiple paths indicated as enabled to transmit data, wherein a path is indicated as enabled or disabled; for each enabled path, gathering a cumulative transfer time for all transfer operations during a measurement period through the path and a cumulative number of the transfer operations during the measurement period; and for each enabled path determining the average cumulative transfer time for the measurement period by dividing the cumulative time by the cumulative number of transfers; and indicating one of the paths as disabled if the average cumulative transfer time for the path satisfies a threshold.

Applicants amended claims 5, 19, and 33 to include the requirements of the base claims 1, 15, and 29 from which they depend. Applicants submit that claims 5, 19, and 33 are patentable over the cited art for the following reasons.

The Examiner cited col. 22, lines 40-56 of Hatakeyama as teaching the claim requirement that for each enabled path, gathering a cumulative transfer time for all transfer operations during a measurement period through the path and a cumulative number of the transfer operations during the measurement period. (Final Office Action, pg. 4) Applicants traverse.

The cited col. 22 discusses a response time for paths that can be estimated even if response data cannot be collected by using previously stored actual response time per unit data length. Although the cited col. 22 discusses using stored response times per unit data length, nowhere does the cited col. 22 anywhere teach, suggest or mention gathering a cumulative

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number of the transfer operations during a measurement period. There is no mention of gathering the number of transfers for each path as claimed.

The Examiner cited col. 22, lines 57-64 Hatakeyama as teaching the claim requirements that for each enabled path, determining the average cumulative transfer time for the measurement period by dividing the cumulative time by the cumulative number of transfers and indicating a path as disabled if the average cumulative transfer time for the path satisfies a threshold. (Final Office Action, pg. 4) Applicants traverse.

The cited col. 22 mentions that with the path selecting method using actual response time per unit data length, the overall response performance from the path is evaluated so an optimum path may be selected. Although the cited col. 22 discusses using information concerning an actual response time per unit data length to select an optimum path, this measured information is different from and does not teach or suggest the claimed information of the average cumulative transfer time for the measurement period by dividing the cumulative time by the cumulative number of transfers. There is no mention in the cited col. 22 of determining path performance based on dividing a cumulative time by the number of transfers. Instead, the cited col. 22 discusses using the response time per unit data length, not number of transfers as claimed. Moreover, nowhere does the cited col. 22 anywhere teach or suggest indicating a path as disabled if the average cumulative transfer time for the path satisfies the threshold.

As discussed, although the cited Hatakeyama discusses in the cited col. 4 selecting an optimum path to use, the cited Hatakeyama does not teach or suggest indicating a path as disabled. Applicants submit that selecting a path to use, which involves not select one path, does not teach taking an affirmative action to indicate a path as disabled as claimed.

Accordingly, amended claims 5, 19, and 33 provide additional grounds of patentability over the cited art.

Claims 6, 20, and 34 depend from claims 5, 19, and 33. The Examiner cited col. 23, lines 14-19 of Hatakeyama as teaching the claim requirements that the measurement period comprises a number of transfer operations for all paths, wherein the determination to disable paths occurs

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after the number of transfer operations in the measurement period has occurred. (Final Office Action, pg. 4) Applicants traverse.

The cited col. 23 mentions that as the number of nodes and path patterns to be selected grow, the amount of calculation for estimating an optimum path increases, but the algorithm allows estimation with a relatively small amount of calculation despite increased complexity. This discussion of the general scalability of the discussed algorithm nowhere suggests or mentions the claim requirement that a measurement period comprises a number of transfer operations for all paths. Instead, the cited col. 23 mentions that the algorithm operates as complexity of the network increases. Applicants submit that this cited col. 3 does not teach, suggest, or concern the claim requirements that the measurement period comprises a number of transfer operations. Further, nowhere does the cited col. 3 anywhere teach or suggest the claim requirement that the determination to disable paths occurs after the number of transfer operations in the measurement period has occurred.

The Examiner cited col. 23, lines 20-26 of Hatakeyama as teaching the claim requirement of starting another measurement period to gather transfer time data after determining paths to disable. (Final Office Action, pg. 4)

The cited col. 23 mentions that with the algorithm it is sufficient to calculate a difference of an estimation individual, which occurs due to a network environment change, and that it does not require performing a calculation based on the entire environmental data each time a path is selected.

Nowhere does the cited col. 23 anywhere teach, suggest or mention the claim requirement of starting another measurement period to gather transfer time data after determining paths to disable. Instead, the cited col. 23 mentions that the calculation does not have to occur each time a path is selected.

Accordingly, claims 6, 20, and 34 provide additional grounds of patentability over the cited art.

Claims 7, 21, and 35 depends from claims 1, 15, and 29 and further require that the transfer time data is gathered by path and transfer size, and wherein the average cumulative

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transfer time is calculated for each enabled path and for at least one transfer size. The Examiner cited col. 22, lines 40-56 as teaching the additional requirements of these claims. (Final Office Action, pg. 5) Applicants traverse for the following reasons.

As discussed, the cited col. 22 discusses a response time for paths that can be estimated even if response data cannot be collected by using previously stored actual response time per unit data length. Although the cited col. 22 discusses stored response times per unit data length, nowhere does the cited col. 22 anywhere teach, suggest or mention that transfer time data is gathered by path and transfer size, and that the average cumulative transfer time is calculated for each enabled path and for at least one transfer size. Instead, the cited col. 22 discusses measuring a response time per unit data length per path, but nowhere suggests or mentions gathering transfer time data by path and transfer size as claimed.

Accordingly, claims 7, 21, and 35 provide additional grounds of patentability over the cited art.

Claims 8, 22, and 36 depend from claims 7, 21, and 35 and further require that the measurement period comprises a number of transfer operations for all paths for a transfer size, wherein the determination to disable paths for a transfer size occurs after the number of transfer operations in the measurement period has occurred, and further comprising starting another measurement period to gather transfer time data for the transfer size after determining paths to disable for the transfer size.

The Examiner cited col. 14, lines 54-64 of Hatakeyama as teaching the claim requirement that the measurement period comprises a number of transfer operations for all paths for a transfer size, wherein the determination to disable paths for a transfer size occurs after the number of transfer operations in the measurement period has occurred. (Final Office Action, pg. 5) Applicants traverse.

The cited col. 14 mentions that the estimated response time for each of the paths is obtained based on the estimation individual and actual response times. A path calculating unit knows at least one of the possible available paths and collect the information of one available path.

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Nowhere does this cited col. 14 anywhere teach or mention the claim requirement that the measurement period comprises a number of transfer operations for all paths for a transfer size, wherein the determination to disable paths for a transfer size occurs after the number of transfer operations in the measurement period has occurred. There is no mention in the cited col. 14 that the measurement period comprises a number of transfer operations or determining to disable paths for a transfer size.

Accordingly, claims 8, 22, and 36 provide additional grounds of patentability over the cited art.

Claims 9, 23, and 37 depend from claims 5, 19, and 33 and further require that the transfer time is measured from the time the transfer is sent to the device to the time a response is received from the device indicating that the transfer completed, further comprising adding the transfer time for a transfer transmitted down the path to the cumulative transfer time for the path. The Examiner cited col. 22, lines 40-56 of Hatakeyama as teaching the additional requirements of these claims. (Fifth Office Action, pg. 5) Applicants traverse for the following reasons.

As discussed, the cited col. 22 discusses that a response time for paths can be estimated even if response data cannot be collected by using previously stored actual response time per unit data length. Although the cited col. 22 discusses stored response times per unit data length, nowhere does the cited col. 22 anywhere teach, suggest or mention maintaining a cumulative transfer time for a path. Instead, the cited col. 22 discusses a response time per unit data length, but does not mention or suggest a cumulative transfer time for a path.

Accordingly, claims 9, 22, and 37 provide additional grounds of patentability over the cited art.

Claims 10, 24, and 38 depend from claims 5, 19, and 33.

The Examiner cited col. 22, lines 40-56 of Hatakeyama as teaching the claim requirement that for each enabled path, a best average transfer time is determined from the average cumulative transfer times for all paths. (Final Office Action, pg. 5) Applicants traverse.

As discussed, the cited col. 22 discusses that a response time for paths can be estimated even if response data cannot be collected by using previously stored actual response time per unit

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data length. Although the cited col. 22 discusses stored response times per unit data length, nowhere does the cited col. 22 anywhere teach or mention determining a best average transfer time from the average cumulative transfer times for all paths.

The Examiner cited col. 11, lines 48-59 as teaching the claim requirement that determining whether the average cumulative transfer time for one path satisfies the threshold comprises determining whether the average cumulative transfer time for the path exceeds the best average transfer time by a percentage amount. (Final Office Action, pg. 6) Applicants traverse.

The cited col. 11 mentions that if an actual response time matches an estimated response time, the degree of fitness becomes "1". The degree of fitness is defined as a degree for determining how accurately the response time of a service can be estimated. (Col. 11, lines 16-20). A degree of fitness closer to one means that the estimation individual has higher genes. Applicants submit that this cited degree of fitness does not concern nor suggest the claim requirement of determining the claim requirement whether the average cumulative transfer time for the path exceeds the best average transfer time by a percentage amount.

Accordingly, claims 10, 24, and 38 provide additional grounds of patentability over the cited art.

Claims 11, 25, and 39 depend from claims 10, 24, and 38 and further require that determining whether the average cumulative transfer time satisfies the threshold further comprises disabling the path for a first number of transfer operations if the average cumulative transfer time for the path exceeds the best average transfer time by a first percentage amount and disabling the path for a second number of transfer operations if the average cumulative transfer time for the path exceeds the best average transfer time by a second percentage amount. The Examiner cited col. 22, lines 40-56 of Hatakeyama as teaching the additional requirements of these claims. (Final Office Action, pg. 6) Applicants traverse for the following reasons.

As discussed, the cited col. 22 discusses that a response time for paths can be estimated even if response data cannot be collected by using previously stored actual response time per unit data length. Although the cited col. 22 discusses stored response times per unit data length, nowhere does the cited col. 22 anywhere teach, suggest or mention the claim requirements of

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disabling the path for a first number of transfer operations if the average cumulative transfer time for the path exceeds the best average transfer time by a first percentage amount and disabling the path for a second number of transfer operations if the average cumulative transfer time for the path exceeds the best average transfer time by a second percentage amount. In the cited col. 22 there is no mention of disabling paths, nor considering best average transfer times in deciding when to disable paths.

Accordingly, claims 11, 25, and 39 provide additional grounds of patentability over the cited art.

Claims 13, 27, and 41 depend from claims 11, 25, and 39 and further require that transfer time data is gathered by path and a size of the update, wherein a path is disabled for a given update size and wherein the path is capable of being enabled for at least one other update size. The Examiner cited pg. 20, para. 266 of Bare as teaching the additional requirements of these claims. (Final Office Action, pg. 6) Applicants traverse for the following reasons.

The cited pg. 20 mentions that when a switch port receives a cost packet it updates its tables and sends out an acknowledgment. To update its tables, the switch will first add the outbound queue cost for the port it received the packet on to the switch referenced in the packet. The cost information is then used to update the switch cost table.

Although the cited pg. 20 mentions updating a table with a queue cost, nowhere does the cited pg. 20 anywhere teach, suggest or mention that transfer time data is gathered by path and a size of the update, wherein a path is disabled for a given update size and wherein the path is capable of being enabled for at least one other update size. These specific claim requirements are nowhere mentioned or suggested in the cited pg. 20.

Applicants presented the above arguments distinguishing the above cited paragraphs 365-367 from the requirements of claims 4, 18, and 32 in the First Office Action. If the Examiner maintains the rejection of these claims, Applicants request the examiner to specifically address my grounds of distinction over this cited art.

Accordingly, claims 13, 27, and 41 provide additional grounds of patentability over the cited art.

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Conclusion

For all the above reasons, Applicant submits that the pending claims 1-3, 5-17, 19-31, and 33-42 are patentable over the art of record. Applicants submit herewith the fee for the claim amendments, a one month extension of time, and the RCE fee. Nonetheless, should any additional fees be required, please charge Deposit Account No. 09-0466.

The attorney of record invites the Examiner to contact him at (310) 553-7977 if the Examiner believes such contact would advance the prosecution of the case.

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